EXPERIMENT-1

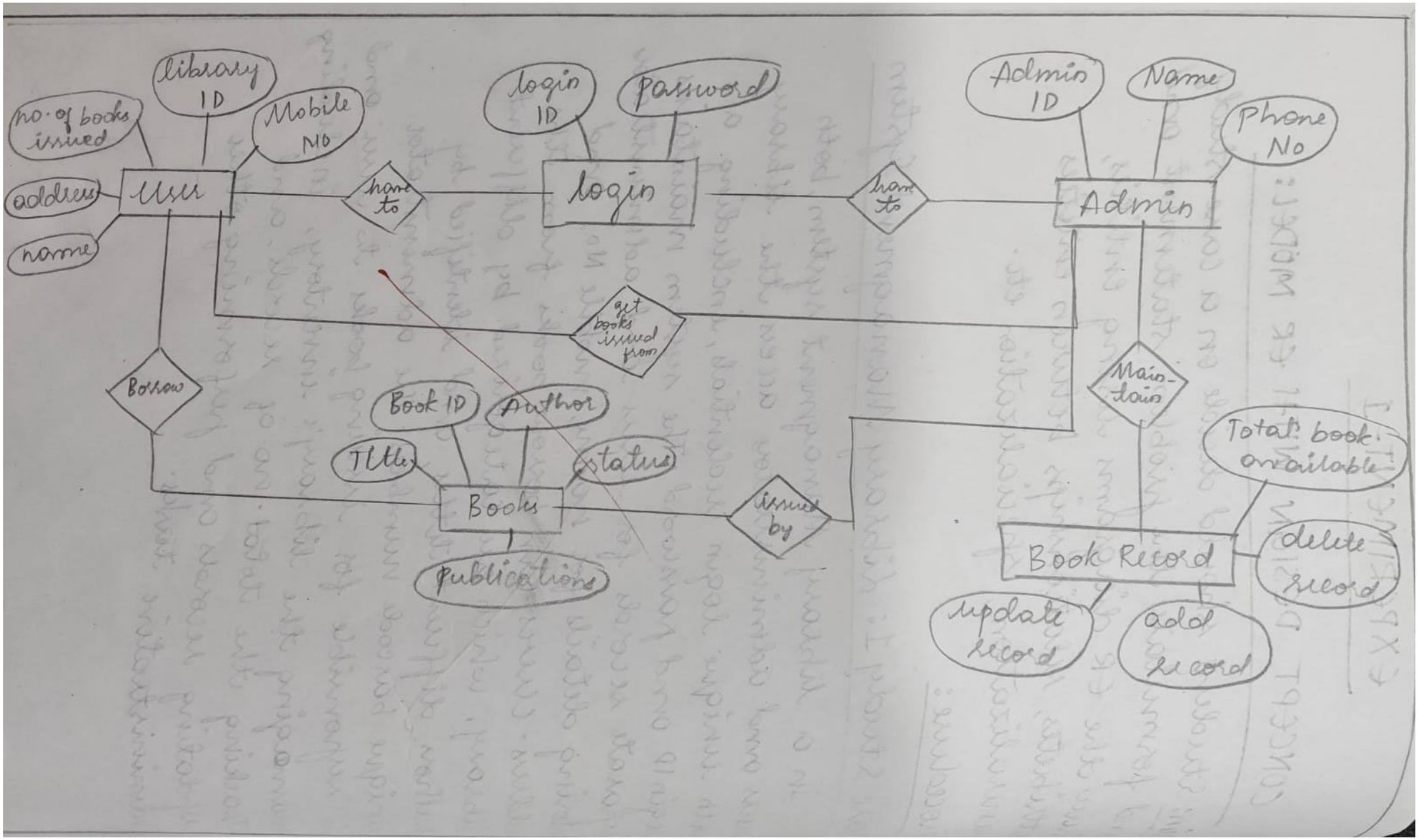
CONCEPT DESIGN WITH ER MODEL:

Aim: Student should decide on a case study and formulate the problem statement and draw the ER diagrams using entities, attributes, relationships between entities generalization, specialization etc.

Procedure:

Case Study 1: Library Managment System

In a library Managment system, both users and administrators access the library with unique login credentials, including a loginID and password. The system maintains separate records for users and administrators storing details for name, mobile No. and address. Users can borrow books from the library, which are categorized by different authors, diffient titles, and identified by unique barcode numbers. The administrator is responsible for issuing books to users and managing the library's inventory, including tracking the total no. of records, and updating records and performing other administrative tasks.


library ID
no. of books issued
Mobile NO
address
User
name
have to
login ID
password
login
have to
Admin ID
Name
Phone No
Admin
get books issued from
Borrow
Book ID
Author
Title
status
Books
Publications
issued by
Main-tain
Total book available
Book Record
delete record
update record
add record

Entities:

The following are the entities of library mangment System.

1. User
2. Login
3. Books
4. Admin
5. Record

Attributes:

1. User:

The following are the attributes of user:

1. Name
2. Mobile No
3. Address
4. Library ID
5. No. of books issued

2. Login:

The following are the attributes of login:

1. Login ID
2. Password

3. Books:

The following are the attributes of books:

1. Author
2. Status
3. Title
4. Book barcode No

4. Admin:

The following are the attributes of admin:

1. Admin ID
2. Name
3. Phone Number

5. Book record:

The following are the attributes of book records:

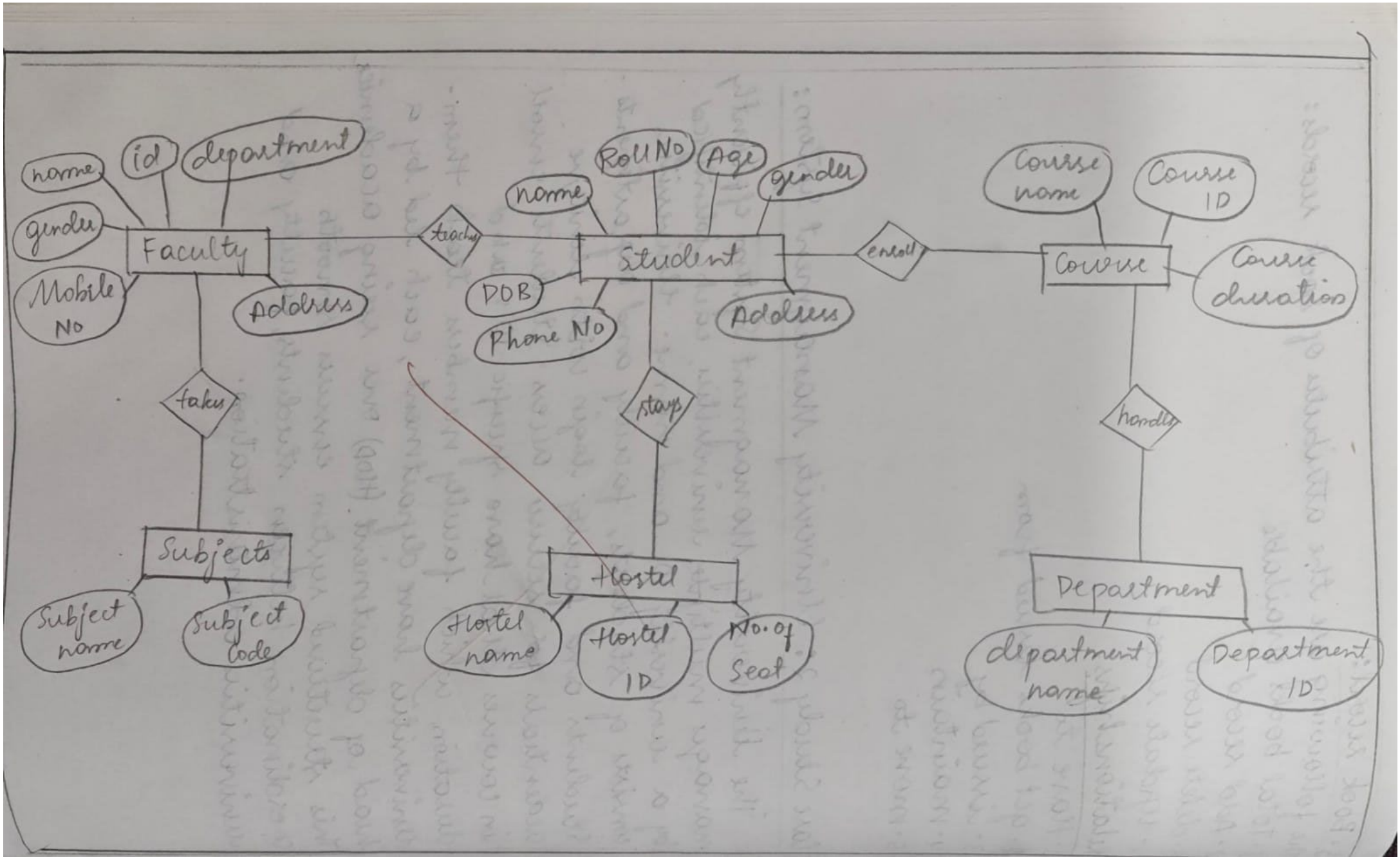
1. Total books available
2. Add record
3. delete record
4. Update record

Relationships:

1. Have to
2. get books issued from
3. issued by
4. maintain
5. more to

Case Study 2: University Managment System:

The University Managment System efficiently manages multiple universities, each identified by a university ID and name. Universities consists of students, faculty and departments. Students and faculty login with unique credentials for secure access. Students enroll in courses that have specific ID's and duration, which faculty members teach them. Universities have department, each led by a head of department (HOD) over seeing academics. This structured system ensures smooth coordination between students, faculty and universities administration.


name
id
department
gender
Faculty
Mobile No
Address
teachy
Roll No
Age
name
gender
Student
DOB
Phone No
Address
enroll
Course name
Course ID
Course
Course duration
takes
stays
handles
Subjects
Subject name
Subject code
Hostel
Hostel name
Hostel ID
No. of Seat
Department
department name
Department ID

Entities:

The following are the entities of university Managment System:

1. Student
2. Faculty
3. Course
4. Subjects
5. Department
6. Hostel

Attributes:

1. Student:

The following are the attributes of student:

1. Student Name
2. Student Roll No
3. Age
4. DOB
5. Phone Number
6. Address
7. Gender

2. Faculty:

The following are the attributes of faculty:

1. Faculty Name
2. ID
3. Department
4. Mobile Number
5. Gender

3. Course:

The following are the attributes of course:

1. Course Name
2. Course ID
3. Duration

4. Subjects:

The following are the attributes of subjects:

1. Subject Code
2. Subject Name

5. Department:
The following are the attributes of department:
1. Department ID
2. Department name

6. Hostel:
The following are the attributes of hostel:
1. Hostel ID
2. Hostel Name
3. No. of seats

Relationships:
1. teaches
2. enrolls
3. living / stays
4. handles
5. takes
6. belongs

Case Study 3: Hospital Managment System:

The Hospital Managment System tracks patient information such as name, gender, age and address with each patient assigned a unique ID. Patients can either be inpatients (or) outpatients and their treatment is managed by assigned doctors identified by their doctor ID. They provide consultations, diagonsis, diseases and track patient health status. Lab reports are generated for patients with numbers and tests. Inpatients are admitted to specified rooms, identified by room no and their type. Bills are generated based on service provided including the charges, medicines. Each bill is identified by Bill No. and reflects treatment costs. Admissions and discharge dates are managed ensuring efficient managment of bed availability.

Entities:

The following are the entities of hospital Managment System:

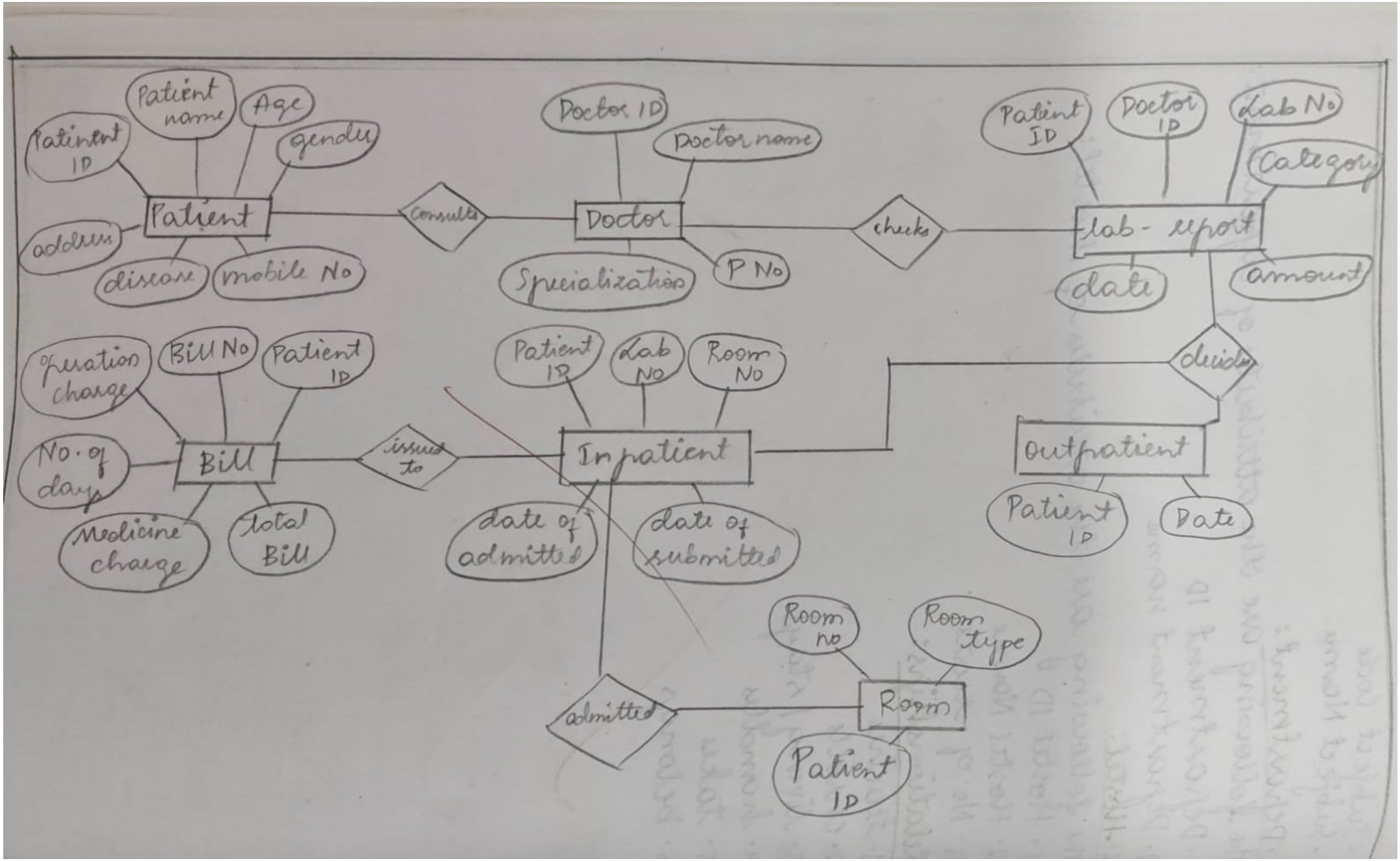
1. patient
2. Doctor
3. lab report
4. inpatient / outpatient
5. Room
6. Bill

Attributes:

1. Patient:

The following are the attributes of patient:

1. Patient ID
2. Patient name
3. Age
4. Gender
5. Address


Patient ID
Patient name
Age
gender
address
disease
mobile No
Patient
Consults
Doctor ID
Doctor name
Specialization
P No
Doctor
checks
Patient ID
Doctor ID
Lab No
Category
lab - report
date
amount
decides
operation charge
Bill No
Patient ID
No. of days
Medicine charge
total Bill
Bill
issued to
Patient ID
Lab No
Room No
Inpatient
date of admitted
date of submitted
Outpatient
Patient ID
Date
Room no
Room type
admitted
Room
Patient ID

6. Phone No
7. disease

2. Doctor:
The following are the attributes of doctor:
1. Doctor ID
2. Doctor Name
3. Specialization
4. Phone No

3. Lab Report:
The following are the attributes of lab report:
1. patient ID
2. doctor ID
3. lab No
4. category
5. data
6. Amount

4. Inpatient:
The following are the attributes of Inpatient:
1. p ID
2. Lab No
3. Date of admitted
4. Date of discharge
5. Room No

5. Outpatient:
The following are the attributes of outpatient:
1. patient ID
2. Date

6. Room:
The following are the attributes of room:
1. Room No
2. room type
3. Patient ID

7. Bill:

The following are the attributes of Bill:

1. Patient ID
2. Bill No
3. Operation charge
4. Medicine charges.
5. Room charge
6. Lab charge
7. No. of days
8. total bill

Relationships:

1. Consult
2. Checks
3. decides
4. admitted to
5. issued.

Case Study 4: Online Shopping System:

The online shopping management System ensuring a seamless shopping experience. The Admin manages website, product, order and customer data. The shopping website allows customers to browse and purchase categorized, products with detailed information. Secure payment processing and other tracking are integrated. Registered customers can place orders, and the system manages order, providing tracking details for efficient shipping and delivery.

Entities:

The following are the entities of online shopping system

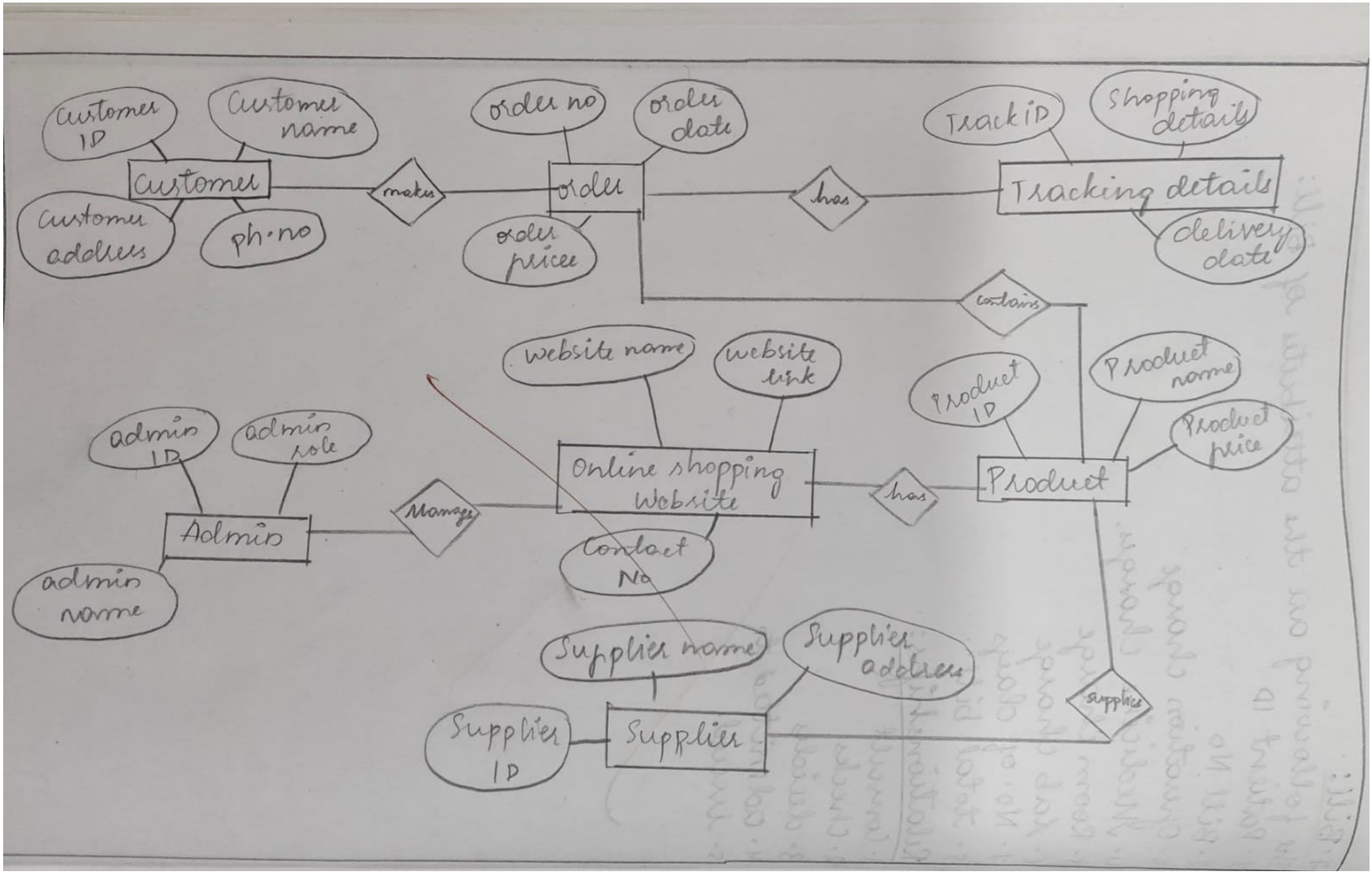
1. Customer
2. order
3. tracking details
4. product
5. Online shopping website
6. Admin
7. Supplier

Attributes:

1. Customer:

The following are the attributes of customer

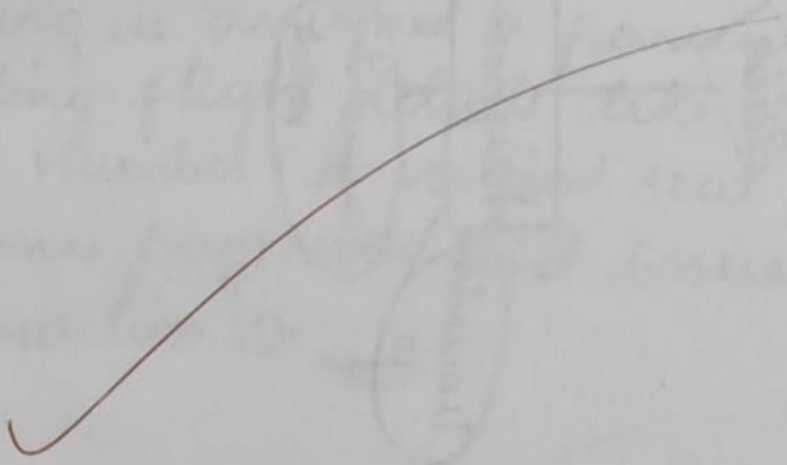
1. Customer ID
2. Customer name
3. Customer address
4. phone No


Customer ID
Customer name
Customer
Customer address
ph.no
makes
order no
order date
order
order price
has
Track ID
Shopping details
Tracking details
delivery date
contains
website name
website link
Online shopping Website
Contact No
Product ID
Product name
Product price
Product
has
admin ID
admin role
Admin
admin name
Manage
Supplier name
Supplier address
Supplier ID
Supplier
supplies

2. Order
The following are the attributes of order
1. Order No
2. Order date
3. Order amount
3. Tracking details:
The following are the attributes of tracking details:
1. Tracking ID
2. Shipping
4. Product:
The following are the attributes of product
1. product ID
2. product name
3. category
4. price
5. Website:
The following are the attributes of website
1. Website name
2. website link
3. Contact No
6. Admin:
The following are the attributes of admin
1. admin ID
2. admin role
3. admin name
7. Supplier:
The following are the attributes of supplier
1. Supplier ID
2. Supplier name
3. Address

Relationships:

1. Make
2. has
3. contains
4. has
5. managed
6. Supplies



Case Study 5: Flight Reservation System

The online Airline reservation system allows users to create accounts by providing personal details like username, name, date of birth, mobile number, gender and address. Registered users can book flights by selecting flight number, source, destination, and class type. The system enables users to check flight availability and cancel reservation. Each booking is assigned a passenger name record, storing flight details like data, name, time, seat number. It verified seat availability processes payments and issues tickets with transaction ID.

Entities:

The following are the entities for flight reservation system

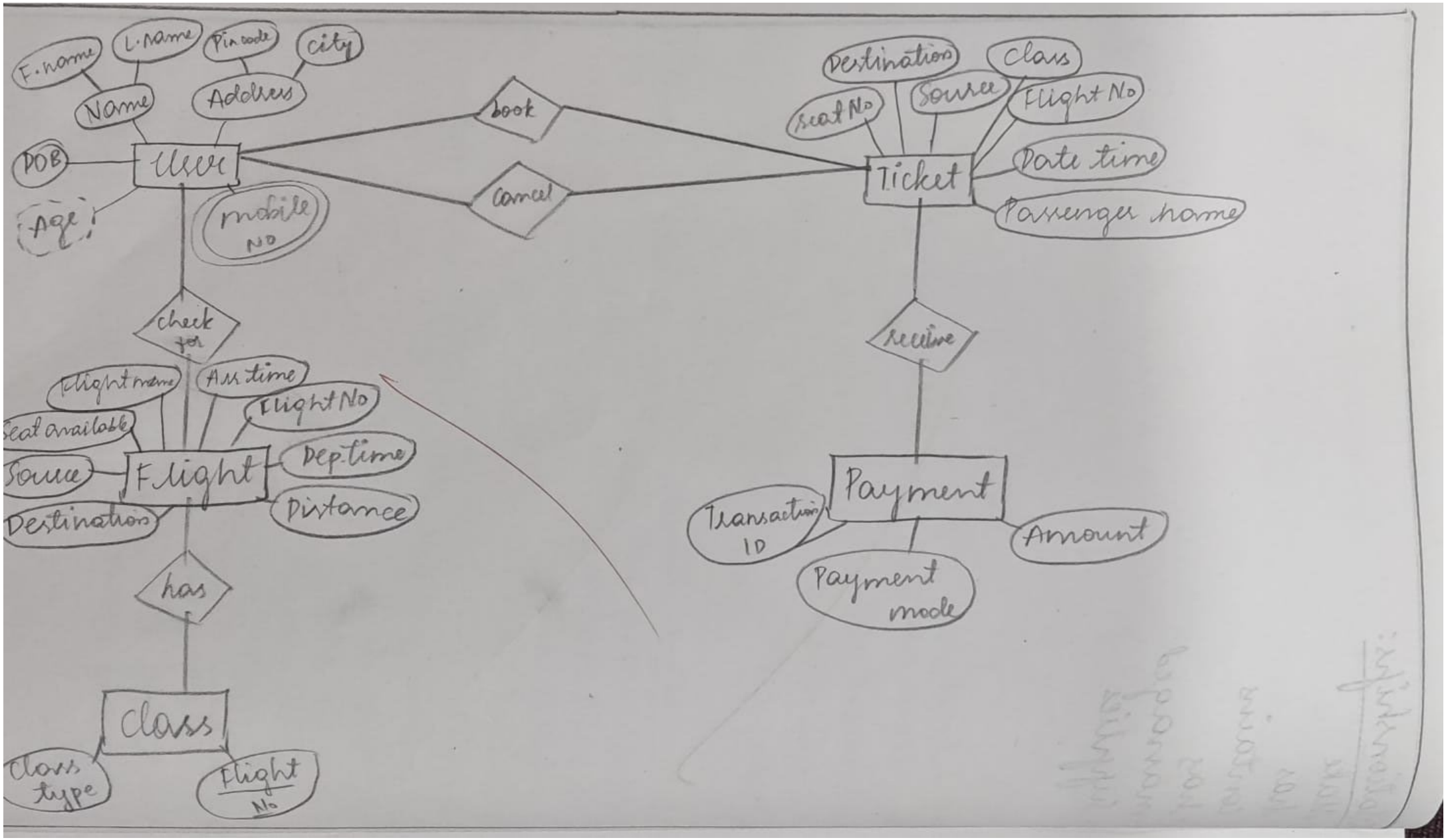
1. User
2. Class
3. flight
4. Ticket
5. Payment
6. Airline

Attributes:

1. User

The attributes of user are

1. Name
   - First name
   - Last name
2. Gender


F.name
L.Name
Name
Pincode
city
Address
POB
User
Age
mobile NO
book
cancel
Destination
Class
seat No
Source
Flight No
Ticket
Date time
Passenger name
check for
receive
flight name
Arr time
Flight No
Seat available
Source
Flight
Dep.time
Destination
Distance
has
Payment
Transaction ID
Amount
Payment mode
class
class type
Flight No

3. DOB
4. Age
5. Address
   - pincode
   - city
6. Mobile No

2. Class

The attributes of class are
1. Flight No
2. class type

3. Flight

1. Flight No
2. Flight name
3. Distance
4. Seat available
5. Destination
6. Source

4. Ticket

1. Seat No
2. Destination
3. Class
4. Passenger name
5. Date time
6. Flight No

5. Payment

1. Transaction id
2. Payment mode
3. Amount

Relationship

1. Book
2. Receive
3. check for
4. has
5. Cancel